

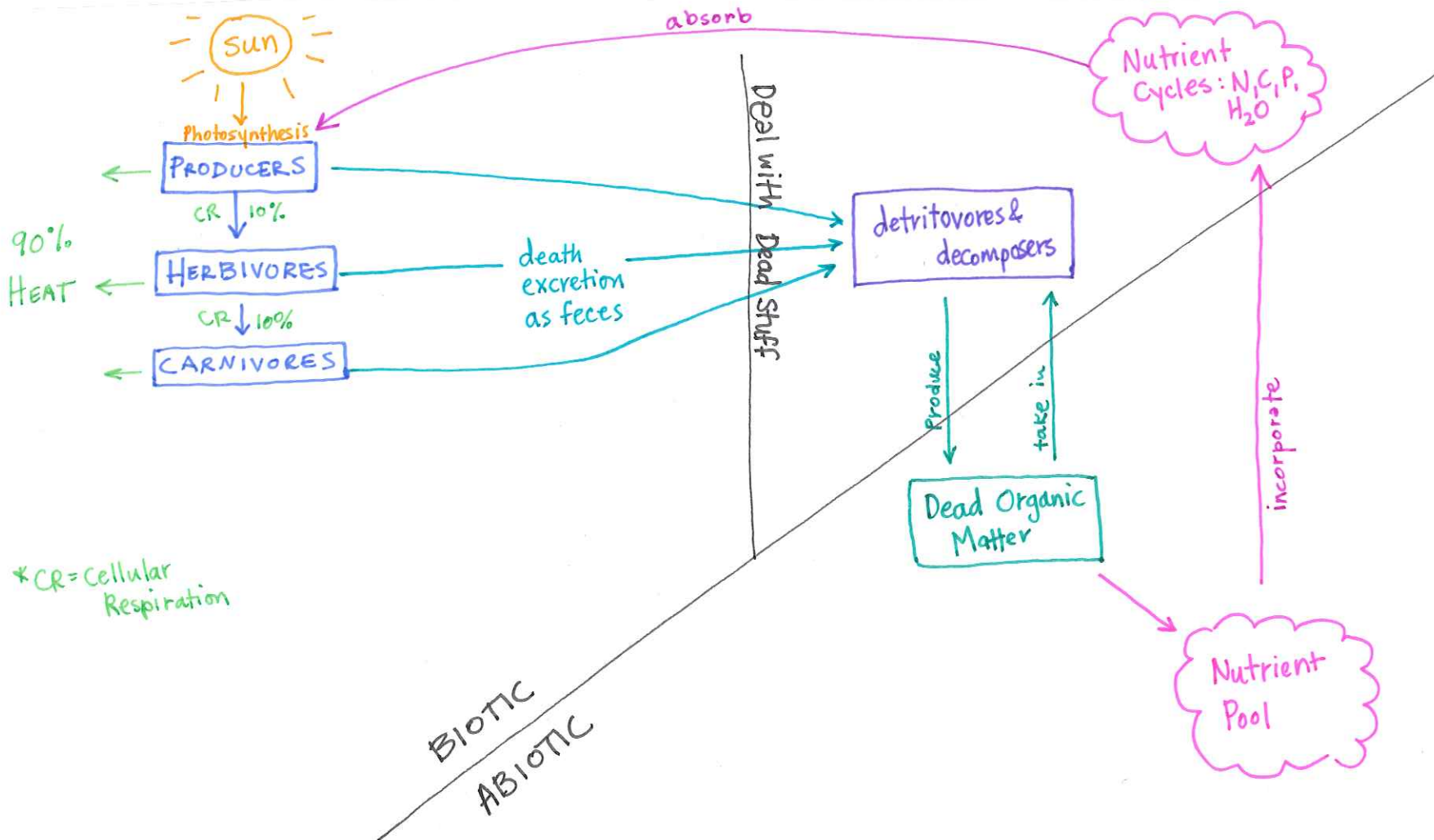
A Bit More on Ecology Basics

2.1.1 Distinguish between biotic and abiotic (physical) components of an ecosystem

2.1.2 Define the term trophic level

2.1.3 Identify and explain trophic levels and food webs selected from the local environment

2.1.6 Define the terms species, population, habitat, niche, community, and ecosystem with reference to local examples



Species	A group of organisms that <u>interbreed</u> and produce <u>fertile</u> offspring.	The tiger, <i>Panthera tigris</i> , is considered a single species with six subspecies surviving and three extinct. Any of these subspecies, such as the Indochinese tiger, <i>Panthera tigris corbetti</i> , could breed with another, such as the Sumatran tiger, <i>Panthera tigris sumatrae</i> , and produce fertile offspring. Lions and tigers can interbreed in captivity but produce only infertile offspring. Lions are a distinct species, <i>Panthera leo</i> .
Population	A group of organisms of the <u>same species</u> living in the <u>same area</u> at the <u>same time</u> and which are capable of <u>interbreeding</u> .	The number of Indochinese tigers, <i>Panthera tigris corbetti</i> , resident in S.E. Asia has been estimated at around 1,000 individuals. The minimum viable population is estimated at around 6 breeding females in a population of around 20 adults.
Habitat	The environment in which a species <u>normally lives</u> .	The habitat of the Indochinese tiger, <i>Panthera tigris corbetti</i> , includes a variety of types of forest. It lives mostly on the forest floor, requiring 50-100km ² of forest per tiger.
Niche	A species' <u>share of a habitat</u> and the <u>resources</u> in it. An organism's ecological niche depends not only on where it lives but also on <u>what it does</u> .	The tiger's niche is that of a top carnivore, a major predator on animals like the wild pig, <i>Sus scrofa</i> , or other large mammal prey between 20-100Kg. It requires plenty of freshwater and prefers forests along the side of a river. A tiger requires a big enough population to find a breeding partner. Its role in the ecosystem is that of top carnivore, helping to regulate competition between herbivores.
Community	A group of populations living and interacting with each other in a <u>common habitat</u> .	In the community of a S.E. Asian rainforest, populations of tigers interact with other species through predation and competition. Tigers may predate on mouse deer, <i>Tragulus napu</i> , and in doing so compete with the clouded leopard, <i>Neofelis nebulosa</i> .
Ecosystem	A community of <u>interdependent organisms</u> and the <u>physical environment</u> they inhabit.	Rainforest ecosystems have a large biomass of trees with a canopy of over 50m in height. They have high productivity despite often thin and infertile soils. The high productivity is largely due to good growing conditions all year round.

Chinese/Asian
Examples
↓

Trophic level	<u>The position that an organism occupies in a food chain</u> , or a group of organisms in a community that occupy the same position in food chains.
Producers	In most ecosystems these are green plants or algae, <u>photosynthetic organisms</u> that form the base of the food chain. They are also called autotrophs, meaning self feeding.
Consumers	Any organism that <u>eats or gains nutrition from another</u> . They are also heterotrophs, which means they feed on another organism.
Herbivores	Heterotrophs that are also termed primary consumers. <u>They consume primary producers</u> . Literally "eats grass".
Carnivores	Heterotrophs, that are secondary consumers or greater. They divide into first order, second order, third order carnivores and so on up to a top carnivore at the end of the food chain. <u>Literally "eats meat"</u> .
Omnivores	<u>These are heterotrophs that feed at any trophic level</u> . They often have a varied diet. Literally "eats all".
Detritivores	Heterotrophic organisms (normally animals) that <u>consume dead organic matter by ingestion</u> . Literally "eats detritus".
Decomposers	These organisms are fungi and bacteria that <u>break food down outside their bodies</u> , by secreting enzymes into the environment. As this process is inefficient they are important in recycling nutrients. <u>Note they don't ingest (eat) as animals do.</u>

← Fig Tree, Dipterocarp Tree, Bird Nest Fern

Leaf Monkey, Mouse Deer, Wild Pigs, Leaf Insect

← Indochinese Tiger

← millipedes